Summer 2026 Project Opportunities

Apply to be a Fondren Fellow for the summer of 2026. Applications are due by ***Tuesday, February 24, 2026 at 11:59 pm****.*

You may apply to one or more project opportunities (althiough, if accepted, you would only work on one project.) Projects will begin around May 11, 2026 and end by August 21, 2026. Look for the link to the Fondren Fellows application at https://library.rice.edu/places/fondren-fellows or on 12twenty.

Project Opportunities:

Directories to Data: Leveraging AI to Create a Digital Preservation Pipeline for Historical Directories

Fondren on Demand: Creating Instructional Video Tutorials

Paper Trails: Evaluating a Collection of Museum Exhibition Publications

Reimagining Fondren: A Charrette Study to Redesign Fondren's North Reading Room to Align with Student Needs

roadsTaken Part II

Teaching Critical Generative AI Evaluation: Developing and Testing an Innovative Framework and Curriculum

Directories to Data: Leveraging AI to Create a Digital Preservation Pipeline for Historical Directories

Project Description

We propose to develop an end-to-end, reproducible pipeline for digitizing historical directories into a structured database format, leveraging cutting-edge AI enterprise tools. This project seeks to address a critical challenge in historical preservation and digital humanities (DH): the underutilization of vast numbers of historical directories due to the inherent difficulties in extracting large quantities of data from these archival print sources. Historical directories, such as city and professional directories, are rich sources of individual-level information regarding historical residences, businesses, professions, and even racial demographics. Their availability only in printed form has traditionally limited research to small sample sets in major urban areas.

We propose to develop an end-to-end, reproducible pipeline for digitizing historical directories into a structured database format, leveraging cutting-edge AI enterprise tools, specifically Microsoft Azure Document Intelligence in Foundry Tools. While conventional optical character recognition (OCR) and prebuilt models in AI excel at handling standard forms, receipts, or invoices, historical directories present unique methodological challenges related to their semi-consistent structure, dense shorthand, and the necessity of distinguishing directory entries from peripheral content (e.g., advertisements or headers).

The core of the project involves three phases of AI model application and refinement: first, extracting raw text and layout information using high-definition OCR tailored for documents; second, training and refining custom extraction and classification models to automatically isolate individual physician or resident entries; and third, segmenting entries and parsing the data into distinct fields (e.g., name, address, business, profession). The final pipeline will be documented and designed to be generalizable, to create a scalable method of extracting data from a variety of directories for historical research. This effort moves historical data from inaccessible print to a database format, which is essential for comprehensive analysis.

Number of Positions

2

Desired Skills

- Strong programming background, particularly with proficiency in integrating external services using REST interfaces/APIs
- Experience with AI model training would be helpful
- An interest in historical documentation, digital humanities, and the challenges of archival processing is essential.

Key Tasks

Key tasks include:

1. *AI Tool Acquisition and Setup:* Gaining access and familiarization with the Azure Document Intelligence/Foundry Tools suite.
2. *Text Recognition and Layout Extraction:* Processing directory pages using Azure Layout and Read models, ensuring straightening and optimal image quality for accurate output.
3. *Custom Model Development:* Training custom extraction and classification models tailored to identify and separate directory content from extraneous page material (headers, ads) and to isolate key fields within entries.
4. *Entry Segmentation and Parsing:* Developing programmatic steps (or refining models) to consolidate lines of text into individual directory entries and then splitting those entries into required data fields based on punctuation and syntax.
5. *Quality Control and Validation:* Auditing extracted data to measure programmatic errors and OCR mistakes, ensuring high accuracy.
6. *Pipeline Documentation and Output:* Documenting the extraction process for reproducibility through an overview of the pipeline's architecture and a user guide and outputting the final structured data into a sustainable database/spreadsheet format.

Learning Ouctomes

Students will gain valuable skills, including:

1. *Enterprise AI Tools:* Hands-on experience using industry-leading AI services, specifically Azure Document Intelligence in Foundry Tools, to tackle complex data extraction problems.
2. *Digital Humanities Methodology:* Applied understanding of data integrity issues, error propagation, and quality control necessary when digitizing historical sources using OCR and parsing techniques.
3. *Historical Preservation:* Direct involvement in transforming primary historical source material into usable, structured datasets, contributing to the sustainable preservation of knowledge for academic and public audiences.

Fondren on Demand: Creating Instructional Video Tutorials

Project Description

This project addresses a need among Rice students for short-form, asynchronous instructional materials from Fondren Library. Over the duration of their fellowship, students will spearhead the creation of peer-to-peer multimedia learning content for the library, particularly video tutorials. Fellows will investigate how other academic institutions have developed instructional content, and will evaluate how Fondren may expand its current learning opportunities for students. Potential video topics may range from how to navigate a particular library database to understanding what a literature review is. Overall, these videos are aimed at acquainting students with Fondren's services and resources, and helping students build their research skills on their own time and at their own pace. By the end of this project, fellows will produce at least five instructional videos and will create a library guide on how to create and publish videos. This

guide will allow Fondren to continue to efficiently produce videos after the conclusion of this fellowship.

The project will consist of four main overlapping phases:

- Research: Investigating academic literature and similar projects from other universities.
- Planning: Developing a production schedule, video topics, and scripts.
- Production: Filming and editing videos.
- Marketing: Publishing content and developing a marketing strategy.

Number of Positions

2

Desired Skills

- Experience with, or interest in, content creation, with a focus on videos
- Comfortable with being in videos
- Interpersonal communication skills

Key Tasks

1. Both fellows will share several responsibilities, especially at the beginning of the fellowship. The fellows will be expected to work together to tackle the following tasks:
    1. Researching pre-developed procedures at peer institutions and investigating how other departments at Rice have developed multimedia content.
    2. Researching the learning preferences of college students, especially those at Rice, and the literature surrounding universal design practices in instruction.
    3. Research talent recruitment and engagement strategies and ethical implications.
    4. Developing a process for planning, developing, and approving student-led content.
    5. Research and set an appropriate time commitment and expectations for various types of content and marketing channels.
2. Both fellows will collaborate on directing and storytelling responsibilities:
    1. Researching and developing content ideas and plans in collaboration with Research Services.
    2. Creating storyboards.
    3. Collecting inspiration and creating moodboards to communicate their vision.
    4. Sourcing on-screen props.
3. Both fellows will collaborate on video editing and production responsibilities:
    1. Researching and deciding on the needed technology and software in collaboration with the Digital Media Commons.
    2. Leading filming and recording.
    3. Editing videos and implementing accessibility best practices.
    4. Supporting the technological needs of their co-fellows.
4. Both fellows will collaborate on content development and writing responsibilities:

1. Researching and fact-checking the information presented in the content.
2. Writing and editing scripts.
3. Writing captions and copy for content publishing and ensuring accessibility.

Learning Ouctomes

This project has posed various questions that students will be able to answer over the course of this project:

- What are other academic institutions doing in terms of video outreach?
- What kinds of learning content do Rice students need/want from Fondren?
- When does Fondren need to engage in student outreach with this information? In what way?
- How do college students prefer to receive information?
- How do I deliver information in a way that supports diverse learners?

This project will also cultivate skills in students that will serve them both academically and professionally:

- Project development skills
- Academic research skills
- Expository and instructional writing skills
- Filming equipment and video editing software

Paper Trails: Evaluating a Collection of Museum Exhibition Publications

Project Description

The Brown Fine Arts Library (BFAL) is home to a sizable collection of uncataloged museum publications that were produced to accompany exhibitions. These items include pamphlets, announcements, booklets, and other short-form documents from the 1960s onward, organized geographically. The collection is no longer being actively developed, and none of the items are discoverable in the library's online catalog. As it currently exists, this collection is essentially invisible to users and potential researchers. Nevertheless, these materials occupy a significant portion of the limited physical space in the BFAL footprint of Fondren Library, and assistance is needed in evaluating and relocating the collection. An initial assessment has shown that the collection includes gems of design inspiration or documentation of artists or movements that are greatly underrepresented in the larger literature. This project is an opportunity for the fellow(s) to evaluate these materials and assist in creating three 'paper trails' to organize the collection by:

1) Identifying materials to be considered for cataloging that could contribute to the research priorities of Rice students and faculty, and that may be rare or not widely available at other institutions;
2) Creating a teaching/exemplar collection of items with interesting design elements that could coordinate with the Athena Press and book arts/printing design instruction and outreach; 3) Assessing material to be withdrawn and removed from the BFAL.

The overarching goal of this project is to transform a literal wall of paper into a tailored and discoverable

collection of resources that will better serve the Rice community. It is an opportunity for truly hands-on (with gloves, if you like!) collection management and interaction with printed materials.

Number of Positions

2

Desired Skills

- A robust knowledge of art history
- An understanding of current trends in art historical research and the research priorities of faculty and students at Rice

Key Tasks

- Physically handle all materials on the designated shelves to determine applicability to one (or more) of the three 'paper trails';
- Physically organize materials into the three 'paper trails' in a provided location (e.g. empty shelves in BFAL or boxes kept in a study room or carrel);
- Research individual titles, institutions, artists, and movements discussed to ascertain alignment with research priorities and/or rarity;
- Create an inventory of the physical items in each 'paper trail';
- Write a report documenting the project's process and outcomes (e.g. types of items identified, tallies in each trail, etc.).

Learning Ouctomes

Students will learn how to discern the research value of materials and develop a critical understanding of trends in art history and research conducted in the specific interests of Rice faculty and students (e.g. current doctoral theses, professors' explicit research areas). Through their work with the Athena Press, Fondren Library systems, and other related research activities, students will also gain experience in cross-institutional and interdisciplinary collaboration. Finally, participation in this project will provide students with essential project management skills and documentation experience that is broadly applicable in a variety of careers or projects in the arts, such as in a library, museum, or arts education setting or in curatorial roles and other arts related positions.

Reimagining Fondren: A Charrette Study to Redesign Fondren's North Reading Room to Align with Student Needs

Project Description

Imagine redesigning one of Rice's most iconic spaces! Join a hands-on charrette to help reimagine Fondren Library's North Reading Room as a vibrant hub for learning, collaboration,

and connection. Blend creativity, research, and design thinking to shape how the next generation of Owls will study, share ideas, and build campus community.

This project invites a Fondren Fellow to collaborate on a ***charrette study*** to reimagine a portion of Fondren Library's first floor—one of the library's busiest and most visible spaces. As academic and social needs evolve, this study will investigate how space can be better designed to foster inclusivity, collaboration, and scholarly engagement through the input of students. A ***charrette*** is an intensive, collaborative design workshop that brings together stakeholders to generate creative, research-based solutions to spatial challenges. Partnering with the Director of Access Services, the Fellow will employ participatory design methods, space-use analysis, and benchmarking of peer institutions to develop conceptual redesigns and actionable recommendations.

This project is well-suited for the Fondren Fellows program because it combines research, creativity, and community collaboration in service of the library and the broader scholarly community. It exemplifies the program's emphasis on experiential learning projects that both engage students in authentic research experiences and generate tangible outcomes benefiting Fondren. The Fellow will gain hands-on experience in qualitative research, design thinking, and stakeholder facilitation, while contributing meaningfully to an ongoing institutional effort to align library spaces with Rice's evolving academic culture.

The project's impact will be twofold. For Fondren, it will produce research-driven insights into how students experience Fondren, offering data and conceptual design directions to inform future renovation and service planning. For the Fellow, it provides an opportunity to apply design and research skills in a real-world setting, developing a deeper understanding of inclusive space design and participatory engagement within academic environments.

Number of Positions

1

Desired Skills

This project would be ideal for students in Architecture, Design, Urban Studies, Environmental Psychology, Education, or related fields. Skills in qualitative research, visualization, or participatory facilitation are helpful but not required.

Key Tasks

The project is designed to be completed over the summer of 2026. Key tasks include the following:

- Complete National Charrette Institute certification
- Conduct background research and space use observations
- Create planning for charrette
- Assist in facilitating charrette

- Conduct data analysis with mentor
- Co-present with mentor on key findings, conceptual layouts, and recommendations
- Co-create final report with mentor

Together, the Fellow and mentor will develop a compelling, research-informed vision for how Fondren Library's North Reading Room can evolve into a more inclusive and inspiring space for the Rice community.

Learning Ouctomes

Through this project, students will gain hands-on experience in research, design, and collaboration within a real-world academic environment. The Fondren Fellow will apply design thinking and participatory methods by co-facilitating a charrette workshop that will engage students, faculty, and staff in reimagining space in Fondren Library. They will develop qualitative research skills, including observation, interviews, and thematic analysis, to gain an understanding of how people use and experience library spaces.

Students will also learn to translate research into visual and strategic outcomes, creating conceptual layouts and design proposals that communicate evidence-based recommendations. The project emphasizes inclusive and accessible design, helping students understand how academic libraries can foster equity, belonging, and engagement.

Working alongside a graduate student project manager and library mentor, participants will also strengthen project management, communication, and presentation skills, preparing them to contribute effectively to multidisciplinary teams and future professional environments.

roadsTaken Part II

Project Description

During the academic year 2022-23, three Fondren Fellows–Josué Alvarenga, Samuel Lee, and Indrani Maitra–helped our team at the Baker Institute Center for Energy Studies and Spatial Studies Lab map the more than 11,000 structures destroyed by highway construction in Houston from 1946-1974. These students then presented their findings at the Black Houston(s) Symposium. Their labor and scholarship helped create the interactive website *roadsTaken*, which chronicles the first three decades of highway construction and displacement in Houston.

Today, Houston is at a turning point, planners are in the process of building over $10 billion in highway expansions in the urban core of the region. Initial estimates place ongoing displacement at over 600 structures and over 1,000 residents. *roadsTaken*, as the most comprehensive catalog of historical highway displacements in Houston, with the help of potential summer 2026 Fondren Fellows, will expand its spatial database, which currently ends in 1974, to the present and to near future. Fellows will be invited to become spatial historians for the summer, working to develop the project's research strategy, their own historical and GIS skills, before mapping and cataloging the people and buildings displaced over the last five

decades and in the coming five years. By the end of the second stage of this project *roadsTaken* will be a complete temporal cartography of the past, present, and near future of transit infrastructure building and displacement in Houston, and the essential resource for scholars and policy-makers interested in the impacts of these displacements on the poor and Houstonians of color.

Since *roadsTaken*'s publication in the winter of 2024, the *roadsTaken* team has gathered the materials, both archival and technical, to complete the last 50 years of highway spatial history in Houston. Students will begin work by engaging with current scholarship in this subject from the field of urban and planning history. Students will plan their work with close supervisor guidance, georeference and enrich historical maps and other archival sources, and then extract, classify, and create spatial historical data (using GeoAI and by hand) from these sources. Students will also select a key region or neighborhood of a city and use historical maps, aerials, and newspapers to track its evolution before, during, and after highway construction. Finally, students will create a historical narrative around the spatial data and historical sources they have worked with. At the close of the project, the supervisor will update the interactive map with the fellows' work and publish their narratives on roadstaken.org.

Number of Positions

2

Desired Skills

- An interest in local history, urban planning, transportation policy, the built environment, structural inequality, environmental determinants of health, GIS, or design
- All other skills and qualifications (using GIS software, analyzing historical and current transportation spatial data, creating historical narratives) will be taught as part of the fellowship
- Experience with GIS or working with historical sources is a plus

Key Tasks

1. Students will start with a guided reading of pertinent literature (articles and selected chapters by Deborah Archer, Kyle Shelton, Robert Bullard, Tom Lewis, Sarah Jo Peterson, and Megan Kimble) and discuss this scholarship with each other and the project supervisor and apply this context of our analysis of current and historical freeway building (~5-8 hours). Students will also test a set of teaching materials designed for high school students and provide feedback (~2 hours).
2. Students will learn the basics of ArcGIS software (ArcGIS Online Web Maps, StoryMaps, Pro, and Experience Builder) with a focus on geoprocessing tools, georeferencing, web design, and GeoAI feature extraction (~15 hours).
3. Students will be collaboratively assigned one of the mapping and data collection aspects of the project based on their interest, these tasks are: (total ~200-225 hours)
    a. Mapping historical and current transit lines including Houston street car system, the HouTran system, and the Houston Metro system over time.

    b. Mapping highway displacement from 1975-2025, including highway SH 290 and Beltway 8.
    c. Mapping planned highway displacement from the North Houston Highway Improvement Project (NHHIP), the I-10 Inner Katy Managed Lanes Project, the SH 35 (Spur 5) Project, and displacements that will likely result from the proposed Gulf Freeway Planning and Environmental Linkages (PEL) Study.
    d. Create a complete spatial database of the city's racial, ethnic, and economic demographics over time using census data. Create a similar spatial database using housing and tenure data.

Note: Tasks 3B and 3C will require multiple students

4. Analysis of neighborhood impact of highways using GIS methods. Students will choose a neighborhood. Students and supervisor will work together on the Central Business District (downtown), then students will repeat the methods on their chosen neighborhood, analyzing the change over time of the neighborhood using historical GIS tax data, remote imagery with features extracted using GeoAI (cars, buildings, parking lots, trees), changes in density, tree cover, and impervious surfaces. (~10-25 hours)
5. Students will create a StoryMap to be included on the roadsTaken website about their site of analysis or another aspect of the project that may emerge and capture their interests (~15-25 hours).

Learning Ouctomes

Students will be able to debate the key questions in urban history and planning literature about highway displacement and expansion. Students will learn a basic understanding of spatial history and become comfortable with GIS. Students will practice the craft of history on a manageable and condensed timeline, and will leave the project as spatial historians in their own right.

Teaching Critical Generative AI Evaluation: Developing and Testing an Innovative Framework and Curriculum

Project Description

Have you ever wondered if ChatGPT is making things up when it helps with your research? Do you want to be at the forefront of tackling one of higher education's most pressing challenges—teaching students how to tell if AI-generated results are trustworthy? This project offers a unique opportunity to shape how thousands of students will learn to critically evaluate AI-generated content, while developing interdisciplinary research skills at the intersection of information science, education, and communication.

As generative AI (GenAI) becomes ubiquitous in the academic life of students, a critical gap has emerged: students lack the skills to evaluate AI-generated content that may contain hallucinated citations, mismatched narratives, embedded biases, and misinformation. Traditional source evaluation methods become insufficient when AI, without transparency of how it works behind

the scenes, can fabricate plausible-sounding references and present biased information with the appearance of authoritative confidence.

This summer project builds on a Spring 2026 pilot instructional module of "Evaluating Generative AI Output for Research" at Fondren Library. The project centers on developing a novel framework that teaches students essential skills to verify AI outputs through three complementary checkpoints: *source verification, cross-reference checking, and contextual evaluation*. Using cases from two academic fields (one in public health and one from the fellow's own area of expertise), the Fondren Fellow will systematically test and identify common AI error patterns, develop practical evaluation tools and instructional materials, and conduct usability testing of the course content with student volunteers.

Key Research Questions

1. What types of errors of GenAI models can be found in student research tasks?
2. What evaluation framework that addresses the unique challenges of GenAI's output could be developed?
3. What instructional features could ensure an effective delivery of the key messages to students?

Deliverables

- A course usability report and actionable recommendations for curriculum refinement for the course's Fall 2026 implementation
- "Generative AI Evaluation Toolkit" LibGuide for Rice students and researchers
- Research findings suitable for conference presentation and peer-reviewed publication (optional)

Number of Positions

1

Desired Skills

- Have at least **one of** the listed previous research experiences: class project, independent study, research assistantship, or have completed at least one research methods course
- Excellent written and verbal communication skills
- Experience using AI tools (ChatGPT, Claude, Copilot, Gemini, or similar ones)
- Basic proficiency with spreadsheet software and data organization
- Ability to work independently while meeting regular deadlines

Key Tasks

The Fellow's responsibilities span three key areas:

AI Response Pattern Research

Conduct systematic prompt testing across multiple AI models (e.g. Gemini and Copilot through Rice subscription, and the free version of ChatGPT and/or Claude). Document responses and refer to literature to create a typology of common errors GenAI models make, and curate prompt and response examples for future teaching.

Instructional Material Development

Refine the lesson plan with the key components of the newly developed evaluation framework. Design practical tools, including worksheets, evaluation guides, and student handouts for class.

Usability Testing and Assessment

Work with the UX office for appropriate human subject research training and IRB approval before the start of the project.

Facilitate a micro-pilot session (taught by the mentor), followed by leading a focus group with 5-10 student volunteers, to identify confusion points, and gather qualitative feedback on the course material and learning experiences. Make recommendations for the full implementation of the course in the fall semester.

Learning Ouctomes

Through this mentorship, the Fellow will develop expertise in:

- Instructional Design: Translating theoretical frameworks into practical pedagogical tools
- Human-Centered AI Research: Systematic analysis of AI behavior and error patterns
- Usability Testing: Designing and conducting qualitative research on user perspectives of a new instructional module
- Academic Communication: Preparing findings for conference presentation and/or publication